

## Appendix A

# **Detroit Metropolitan Wayne County Airport 2006 Economic Impact Study**



DETROIT METRO • WILLOW RUN  
WAYNE COUNTY AIRPORT AUTHORITY

**M** UNIVERSITY OF MICHIGAN-DEARBORN  
SCHOOL OF MANAGEMENT

*THE ECONOMIC IMPACT  
OF THE  
DETROIT METROPOLITAN WAYNE COUNTY AIRPORT  
2006*



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### Executive Summary

Detroit Metropolitan Wayne County Airport (DTW) is crucial to the health of the state and the region. Over 18,000 employees work at the airport itself, but this represents only a fraction of the overall jobs impact of the airport. People throughout Michigan have a stake in its continued success.

The economic impact of the airport on **Wayne County** includes

- Over \$5 billion in demand for goods and services annually
- Over \$1 billion in annual incomes to county residents
- Over 30,000 jobs for county residents.

The economic impact of the airport on the entire **State of Michigan** includes

- Over \$7.6 billion in demand for goods and services annually
- Over \$2 billion in annual incomes to state residents
- Over 70,000 jobs in the State of Michigan.

The economic impact of Detroit Metropolitan Airport results from three factors. Most obviously, it provides the direct economic impact of transportation: over 36 million passengers arrive or depart from the airport. Secondly, it brings 2.9 million visitors to Michigan each year whose business and tourism spending benefits Michigan businesses and workers. This includes 2.4 million visitors who use Detroit Metropolitan as their destination airport and a further 500,000 visitors who use Detroit Metropolitan as the major airport gateway to other Michigan airports. Finally, businesses at the airport generate sales that benefit the local economy.

## Executive Summary

Each of these types of airport-generated demand has both direct and indirect effects. When incomes for area residents increase, they are able to purchase more goods and services. Many of these goods and services will be purchased from other area businesses, providing another round of economic opportunities for the area. This overall economic impact is measured in three ways. *Total economic impact* is the total demand for goods and services created (directly and indirectly) by the airport and its customers. *Earnings impact* is that portion of the total economic impact that represents income (wages, salaries, and profits) to area residents. Finally, *jobs impact* is the number of jobs created by the total economic impact.

Wayne County Airport Authority has a Capital Improvement Plan which will maintain and expand the capacity of the airport. This capital improvement plan has an immediate effect – as the construction projects are undertaken, opportunities are made available to area workers and businesses. The capital improvement plan will support (directly and indirectly) over 4,400 jobs in the current fiscal year. More importantly, the increase in the capacity of the airport will provide an ongoing impact. The FAA predicts growth for Detroit Metropolitan Airport as Wayne County and the State of Michigan tap the potential of the fourth largest operational airfield capacity in the country.

This study first explains the nature of economic impact. Then the economic impacts of air travel, visitors, and airport businesses are each quantified in turn using the data as of the beginning of 2006. Finally, the renewal and growth at Detroit Metropolitan Wayne County Airport is examined for its current and future economic impact.

## Executive Summary

The market survey team for this study is Steven Tamaroglio, Christopher Jimenez, Erika Koski, Krista Kovalchuk, Michelle Mamo, Lydia Mayo, and Krystal Weber. Professors Claudia Kocher, Heiwai Lee, and Vivek Sharma constituted the Project Review Team. The cover photo is by Vito Palmisano and the cover was designed by Marc Williams.

Additional information and input for this study were provided by the following staff at the Wayne County Airport Authority:

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Executive Summary

IMPACT OF DETROIT METROPOLITAN AIRPORT  
ON THE WAYNE COUNTY ECONOMY  
Summary Table

Type of Impact	Direct Spending (millions)	Economic Impact (millions)	Earnings Impact (millions)	Jobs Impact
Airline Transportation	\$2,228	\$3,814	\$708	16,309
Visitors	\$718	\$1,103	\$238	11,127
Airport Businesses (retail, parking)	\$215	\$333	\$64	3,250
Correction for Double Counting	(\$8)	(\$12)	(\$3)	(152)
TOTAL	\$3,153	\$5,238	\$1,007	30,535

Note: Double counting arises when customers of airport businesses are also visitors to Wayne County.

Executive Summary

IMPACT OF DETROIT METROPOLITAN AIRPORT  
ON THE ECONOMY OF THE STATE OF MICHIGAN

Summary Table

Type of Impact	Direct Spending (millions)	Economic Impact (millions)	Earnings Impact (millions)	Jobs Impact
Airline Transportation	\$2,228	\$4,209	\$1,048	25,468
Visitors	\$1,590	\$3,066	\$943	41,847
Airport Businesses (retail, parking)	\$215	\$414	\$112	5,008
Correction for Double Counting	(\$21)	(\$43)	(\$13)	(628)
TOTAL	\$4,012	\$7,646	\$2,090	71,695

Note: Double counting occurs when customers of airport businesses are also visitors to the State of Michigan.



## Section I. The Nature of Economic Impact

### *I.A Types of Economic Impact*

Detroit Metropolitan Wayne County Airport is the largest airport in the State of Michigan and is vital to the economic activity of the area and state. This report measures some of the impact of Detroit's airport on Wayne County's economy and the economy of Michigan as a whole.

Whether "area" is defined as a county or a state, the impact of an airport on an area economy can be measured in several ways. The total **economic impact** (or "demand impact") is defined as the total demand for goods and services that result from the existence of the airport. Much of this demand for goods and services generates income to people within the area. This **earnings impact** can take the form of wages and salaries for area workers. The earnings impact also includes profits for owners and investors in area businesses. Economic impact becomes earnings impact to the extent that the purchase price of an item is income to area residents rather than income to distant suppliers.

Demand for goods and services from area businesses creates the need to hire area workers. **Jobs impact** is the measurement of economic impact in terms of the number of jobs created within the area.

Of course, the amount of economic impact which gets translated into earnings impact and jobs impact varies by area and by industry. Demand for a product which is manufactured entirely from area parts will have a greater earnings impact than a product whose parts come from far away. Industries which are more labor-intensive rather than capital-intensive will have a greater jobs impact. For example, \$30,000 spent on restaurant meals has a greater jobs impact than \$30,000 spent on raw aluminum. Relationships between economic impact, earnings impact, and jobs impact must be estimated separately for each industry.

## The Nature of Economic Impact

### ***I.B** Direct and Indirect Impact*

Consider the purchase of a car from a Michigan car dealership. The initial purchase of the car has impacts as described above. The purchase of the car itself qualifies as economic impact. Some of the purchase price will become income to the salesman, other workers at the dealership, and the owner of the dealership. This is earnings impact to the local community. Sales of cars are also what support employment at the car dealership, which is the jobs impact.<sup>1</sup> If the car is produced at a factory in another Michigan city, then another part of the sales price will go to that community. Demand for the car will then have earnings impact and jobs impact for the city with the factory. These effects are all **direct impacts** of the car sale.

The direct earnings impact of the car purchase will likely also have an **indirect impact**. This indirect impact happens because the people who earn income locally spend some of that income locally. (Some of the income, of course, will not be recycled into the area economy and will therefore not have an indirect impact.) The compounding of direct and indirect impacts is known as the **multiplier effect**. The degree of this multiplier effect will depend on the area and industry involved. This multiplier applies to total economic impact, earnings impact, and jobs impact.

Data collected by the Bureau of Economic Analysis at the United States Department of Commerce allows the estimation of multiplier effects for economic impact, earnings impact, and jobs impact. Further details of these multipliers can be found in the appendix to this report. For this study, multiplier effects for relevant industries have been calculated for Wayne County (the home of the airport) and for the State of Michigan as a whole. Using the different multipliers captures the fact that some income generated by Detroit Metropolitan Airport “spills over” from Wayne County to residents who live in other parts of Michigan.

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<sup>1</sup> Of course, the sale of each individual car has an impact which is only a fraction of a full-time job.

## The Nature of Economic Impact

### *I.C Sources of Airport Economic Impact*

The measurable economic impact of Detroit Metropolitan Wayne County Airport comes from three sources. Most obvious is the demand for airline travel itself. This **transportation impact** comes from the demand for passenger and cargo travel involving Detroit Metropolitan Airport.

A second economic impact comes from the fact that DTW brings visitors to Michigan. Without a major airport, many of these visitors would have found it impractical to visit the state. Whether these visitors are tourists or business travelers, the money they spend while in Michigan creates a **visitor impact** that can be even greater than the transportation effect itself. Visitors' spending on hotels, restaurants, and entertainment also is directly attributable to the airport which makes their arrival in southeast Michigan possible.

A third way the airport benefits the local economy is the presence of businesses at the airport itself. The airport provides a wide variety of retail opportunities to travelers, including restaurants, gift shops, and parking. With 36 million passengers arriving and departing from Detroit Metropolitan Airport each year, the cumulative value of this **airport terminal effect** can be substantial.

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## Section II. Transportation Impact: Air Travel

Passenger Departures	18.2 million
Domestic Revenue Passenger Miles	11.1 billion
International Revenue Passenger Miles	7.1 billion
Passenger Air Travel Revenue	\$2,173 million
Air Cargo Revenue	\$55 million
Total Air Transportation Revenue	\$2,228 million

The most obvious type of revenue associated with an airport comes from those purchasing tickets to transport people and cargo. The total revenue associated with selling airplane tickets to the 18.2 million passengers flying out of Detroit Metropolitan Airport must be estimated. This estimate can be computed as the product of airline revenue per passenger mile and the number of passenger miles flown. Department of Transportation Form 41 data contains enough information to calculate miles flown by passengers leaving Detroit Metro. For this study, the most recent 12 months of available data was used. In the case of domestic travel, this meant using the 12 months ending November 2005. International air traffic is reported with a three-month lag, so international flight data was used from the 12 months ending August 2005.

While most passengers leaving Detroit are on domestic flights, those on international flights have a significantly longer average flight. For the year being studied, Department of Transportation data shows a weighted average passenger flight segment of 699 miles for domestic segments and 3,748 miles for international segments. Revenue passenger miles for international flights are therefore 39% of overall revenue passenger miles. 11.1 billion revenue passenger miles were flown on domestic segment departures, and 7.1 billion revenue passenger miles on international segment departures.

## Transportation Impact

The Federal Aviation Administration estimates revenue per passenger mile in 2005 was 11.31 cents for mainline carriers flying domestic routes, 10.88 cents for mainline carriers flying international routes, and 22.75 cents for regional carriers. The 11.1 billion domestic revenue passenger miles mentioned above break down as approximately 9.8 billion miles on mainline carriers and 1.3 billion miles on regional carriers.

Combining these figures, departures from Detroit Metropolitan Airport show total annual revenue of \$1,113 million for domestic mainline flights, \$287 million for regional flights, and \$773 million for international flights. Total demand for passenger services at DTW is therefore \$2,173 million.

Passenger traffic accounts for most of the economic impact at DTW. However, at Detroit Metropolitan Airport 79,560 tons of cargo shipped on domestic flights and 23,850 tons shipped on international flights in the most recent year. In addition, 3,127 tons of mail were shipped on domestic flights and 1,190 tons on international flights. To estimate the value of the shipments, the revenue per ton-mile of NWA's cargo division is used. This was 38.8 cents per ton mile for the first nine months of 2005. The weighted average flight segment length of cargo shipments is 4,026 miles for international flights and 508 miles for domestic cargo. As a result, the value of cargo shipping services from Detroit Metropolitan Airport can be calculated as \$55 million.

Total airport transportation revenue from both passenger and air cargo is therefore \$2.228 billion. Applying the Bureau of Economic Analysis numbers for the air transportation industry enables the total economic impact of this spending to be calculated. For Wayne County, this spending will result in indirect demand effect of \$1.586 billion, for a total economic impact of \$3.814 billion. This demand for goods and services generates \$708 million in local earnings and supports 16,309 jobs.

## Transportation Impact

The total effect for the state of Michigan is greater than the effect on Wayne County alone. This is because much of the earnings and indirect effect that escapes Wayne County remains in Michigan. The total economic impact of Detroit Metro's air transportation for the state (including Wayne County) is \$4.209 billion. This \$4.209 billion in demand generates \$1.048 billion in earnings and 25,468 jobs.

## Section III. Visitor Impact

### *III.A Bringing People to Detroit*

<b>Purpose of Arrival at DTW</b>	<b>Percent</b>	<b>Passengers</b>
Connecting to another flight	67%	12.2 million
Visiting Michigan	13%	2.4 million
Returning home	20%	3.6 million
Total Sample	100%	18.2 million

One important contribution of Detroit Metropolitan Airport is its ability to bring people from around the world to Detroit and the state of Michigan. Airport figures show that 18.2 million passengers arrived at Detroit Metropolitan Airport in calendar year 2005. To determine the economic impact of these passengers, it is necessary to know how many of these arriving passengers are visiting the area. Determining how many passengers are visitors requires some knowledge of passengers' itineraries.

The United States Department of Transportation's Bureau of Transportation Statistics DB1B provides a sample of passenger itineraries from participating carriers. The most recent data is for the 12 months ending September 30, 2005. DB1B data includes information about the starting point, ending point, and breaks in travel for each passenger in the sample. Someone who shows no travel break for their arrival at DTW is connecting to another plane. A traveler who has a break in their travel at DTW but is not concluding their travel is a visitor to the region, and a traveler who is concluding their travel at DTW is taken to be a local resident returning home.

## Visitor Impact

Combining the percentages from the DB1B data to the overall passenger count for 2005 produces the result in the above table. 2.4 million passengers used DTW in 2005 as their arrival airport to visit Michigan, and 3.6 million passengers used Detroit Metropolitan Airport to arrive at home. The remaining 12.2 million passengers arriving at Detroit connected to another flight.



### ***III.B Bringing People to Michigan's Regional Airports***

<b>Purpose of Intrastate Flight Leaving DTW</b>	<b>Percent</b>	<b>Passengers</b>
Returning home to Michigan	63%	1.0 million
Visiting Michigan	33%	0.5 million
Continuing on from next airport	5%	0.1 million
Intrastate travel relative to departures	9%	1.6 million

Detroit Metropolitan Airport also provides economic impact to the state by facilitating air travel to Michigan's regional airports. In 2005, approximately 1.6 million passengers boarded a flight at Detroit whose destination was elsewhere in Michigan. Most of these passengers are included in the 12.2 million passengers using Detroit to connect from one flight to another. The Department of Transportation's DB1B data can again be used to determine whether these travelers are visitors to Michigan or returning residents. As the table above shows, the vast majority of these intrastate flights take the passenger to the intended destination, with only 5% connecting again from the next airport after leaving Detroit. Of the 1.6 million passengers departing DTW on intrastate flights, approximately two-thirds are returning residents and one-third are visitors to Michigan. Adding these intrastate and connecting Michigan visitors to the 2.4 million visitors whose destination airport is Detroit means that Detroit Metropolitan Airport brings 2.9 million visitors per year to the state of Michigan.

### *III.C Market Survey of Economic Activity*

#### **WHO IS VISITING MICHIGAN?**

<b>You are at the airport today ...</b>	<b>Percent</b>
...to connect between planes	67%
...to return to my Metro Detroit home	17%
...but not staying in the Metro Detroit area	5%
...to visit the Metro Detroit area	11%

In order to measure the economic impact of those who used Detroit Metropolitan Airport to visit Michigan, a market survey was conducted in the Smith and McNamara terminals of Detroit Metropolitan Airport. 1,551 passengers were surveyed in December 2005 and January 2006, with 184 interviews taking place in the Smith terminal and 1367 in McNamara terminal. In the above table, the survey numbers have been weighted to match the fact that 15.3% of passengers at those two terminals use the Smith Terminal. As in the DB1B data, 67% of these passengers were using Detroit Metropolitan Airport to connect to another flight. Of those whose destination is the Detroit Metropolitan area, three-fifths are returning home and two-fifths are visiting. This also matches the Department of Transportation DB1B data.

88% of visitors were arriving from other parts of the United States. 17% of visitors came from the Midwest<sup>2</sup> and 44% from elsewhere in the Eastern United States. 27% of visitors arrived from the Western United States, and 12% were visitors from other countries.

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<sup>2</sup> The Midwest is defined here as Michigan, Ohio, Indiana, Illinois, Wisconsin, Minnesota, and Iowa. The Eastern United States is defined as other states east of the Mississippi River, and the Western United States as other states west of the Mississippi River.

### WHAT ARE VISITORS SPENDING?

Average Stay	3.5 days
Average Spending per Day	\$157
Average Spending per Visit	\$548

Of those travelers whose purpose was to visit the metro area, the average stay was 3.5 days. Average spending was calculated in several areas. 64% of visitors stayed in a hotel, and the average spending of a hotel guest was \$347. 89% of visitors spent money in a restaurant, with average spending of \$169. 21% of visitors spent money on entertainment, averaging \$135, and 32% of visitors spent money on retail items such as clothing and gifts, spending an average of \$136.

Most visitors to Michigan traveled by car while in the area. About half (49%) rented a car while others (36%) used the private car of a friend, family member, or business associate. American Express Business Travel estimates that the total cost of renting a car is \$66 per day. This includes all costs (such as gasoline) associated with the rental car. The average person renting a car stayed 3.14 days. Multiplying these two numbers gives an average cost per car renter equal to \$207.

Since 49% of the visitors rented a car, the average visitor (including those who did not rent a car) spent \$102 on car rental. The average stay among business visitors renting a car stayed 2.75 days. This means the average business visitor spent \$110 on car rental. The average stay among pleasure visitors renting a car was 5.1 days, generating average spending of \$82 on car rental for all pleasure visitors.

## Visitor Impact

This means the average passenger (including those who spent nothing on a particular category) spent \$223 on hotels, \$150 on dining, \$102 on car rentals, \$29 on entertainment, and \$44 on retail purchases. The total average spending per visitor is therefore \$548, or \$157 per day. For comparison, a 2004 study by the Detroit Metro Convention & Visitors Bureau reported average spending for all overnight visitors of \$122 per day over a 3.5 night stay. The higher number found in our survey likely reflects a small increase in prices over the interim as well as the likelihood that airline travelers spend more than those who arrive in the area by other means.

### BUSINESS AND PLEASURE TRAVELERS

	Business Travelers	Pleasure Travelers
Percent of Visitors	67%	33%
Average Stay	2.5 days	5.8 days
Average Overall Spending	\$629	\$387
Percent Staying in Hotels	87%	18%
Average Non-Hotel Spending	\$307	\$351

The market survey also enables us to estimate the differences between business and pleasure visitors to the area. Of people visiting the economic region, 67% were business travelers and 33% were pleasure travelers. Business travelers spent an average of \$629 over a stay averaging 2.5 days, while pleasure travelers spent \$387 during an average stay of 5.8 days. A large part of this difference was in hotel spending: 87% of business travelers stayed in hotels while only 18% of pleasure travelers did. Pleasure travelers, on the other hand, spent considerably more on gifts and clothing.

Business travelers were more likely to rent a car (61%) than use a private car (24%) while pleasure travelers were more likely to have access to a private car (62%) than rent a car (24%).

The 87% of business travelers who stayed in hotels spent an average of \$366 at their hotel. 61% of business travelers rented a car. Of business car renters, the average stay was 2.75 days. This means that the average car renter visiting on business had car rental costs of \$182. 92% of business travelers spent money at restaurants, with average spending of \$177. 12% of business travelers had entertainment expenses, which averaged \$201. 20% spent money on retail items, averaging \$68.

## Visitor Impact

This meant that the average spending (including those who spent nothing on a particular category) of business travelers was \$318 for hotels, \$164 on dining, \$110 on car rental, \$24 on entertainment, and \$13 on retail items such as gifts or clothing,

The 18% of non-business travelers who stayed at a hotel spent an average of \$200 during a stay of 3.1 days. 24% of pleasure travelers rented a car, and stayed for an average of 5.1 days. 82% of pleasure travelers spent money at restaurants, with an average spending of \$151. 38% of these visitors spent an average of \$97 on entertainment. 58% of pleasure visitors purchased retail items such as clothing and gifts, averaging \$188 in retail spending.

Including those who spent nothing on a particular category, then, means that the average pleasure traveler spent \$36 on hotels, \$124 on dining, \$82 on car rental, \$37 on entertainment, and \$108 on retail items such as clothing and gifts.

**Visitor Economic Impact on Wayne County**

	Direct Spending (millions)	Total Impact (millions)	Earnings Impact (millions)	Jobs Impact
Hotel	\$236	\$365	\$93	4,281
Dining	\$159	\$262	\$67	4,389
Car Rental	\$245	\$351	\$50	1,411
Entertainment	\$31	\$48	\$12	427
Retail (Gifts & Clothing)	\$47	\$77	\$16	619
<b>TOTAL</b>	<b>\$718</b>	<b>\$1,103</b>	<b>\$238</b>	<b>11,127</b>

Our market survey shows that 11% of the passengers arriving at Detroit Metropolitan Airport were doing so to visit the area. Since airport statistics show that 18.2 million passengers arrived at DTW during 2005, this means that 2.0 million passengers are arriving to visit Metro Detroit. The Detroit Metro Convention & Visitors Bureau estimates that 53% of visitors to the metropolitan area stay in Wayne County. The result is that 1.1 million Wayne County visitors are arriving via DTW each year. The same study shows that spending of Wayne County visitors is very similar to spending by visitors elsewhere in the metropolitan Detroit area.

## Visitor Impact

Using the average spending numbers provided by the market survey, these 1.1 million visitors are spending \$581 million. Of this amount, \$236 million is spent on hotels, \$159 million on dining, \$108 million on rental cars, \$31 million on entertainment, and \$47 million on retail purchases. There are also 1.34 million visitors using Detroit as a destination airport for a visit outside Wayne County. Those visitors who rent cars are likely to do so at or near the airport. This means an additional \$137 million in rental car demand occurs in Wayne County from visitors heading elsewhere in the state.



## Visitor Impact

### Visitor Economic Impact On The State

	Direct Spending (millions)	Total Impact (millions)	Earnings Impact (millions)	Jobs Impact
Hotel	\$647	\$1,222	\$398	16,878
Dining	\$435	\$926	\$300	17,064
Car Rental	\$296	\$488	\$104	2,911
Entertainment	\$84	\$166	\$57	2,012
Retail	\$128	\$264	\$84	2,982
(Gifts & Clothing)				
TOTAL	\$1,590	\$3,066	\$943	41,847

We have seen that 2.9 million people visit Michigan each year through Detroit Metropolitan Airport. The market survey shows that average spending per visitor is \$548. Detroit Metropolitan Airport is therefore the conduit by which \$1.59 billion of spending is brought to Michigan each year. The direct and indirect effects of visitor spending support almost 42,000 Michigan jobs. The jobs impact from visitors is more than half of the overall jobs impact of the airport on the state economy.

## Section IV. Airport Terminal Impact

Category	Sales (millions)
On-Airport Parking	\$52.0
Off-Airport Parking	\$31.2
Food and Beverage Sales	\$62.6
Retail (includes Duty Free)	\$49.1
Services	\$19.8
<b>TOTAL</b>	<b>\$214.7</b>

A variety of non-airline businesses operate on the campus of the airport itself. This includes airport parking, the Westin hotel, car rentals, and stores catering to travelers. Some of these economic impacts (such as car rentals and the hotel) are included in the market study of visitors. Airport parking, however, provides services primarily to area residents using the airport rather than visitors. On-site shopping facilities provide services to all passengers, including the 67% of passengers who are using Detroit Metropolitan Airport to connect from one flight to another.

The Fiscal Year 2006 budget<sup>3</sup> of the Wayne County Airport Authority projects on-airport parking revenue of \$52.0 million. Some passengers also park in lots near the airport owned by private businesses. Our passenger survey shows that 30% of passengers park on-airport while 18% park off-airport. This provides the estimate<sup>4</sup> of \$31.2 million for off-airport parking. Other airport business data for 2005 has been gathered by the airport and is given in the above table.

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<sup>3</sup> The Wayne County Airport Authority has recently restructured its parking fees. Therefore, the Fiscal Year 2006 numbers provide a better indication of current economic impact than the previous year's data.

<sup>4</sup> This estimate presumes that the average off-airport parking passenger spends the same as the average on-airport parking passenger. Differences in per-hour rates may offset differences in length of stay.

Impact of Non-Airline Businesses at Detroit Metropolitan Airport  
on the Wayne County Economy  
Summary Table

Category	Total Spending (millions)	Economic Impact (millions)	Earnings Impact (millions)	Jobs Impact
On-airport Parking	\$52.0	\$75.5	\$10.4	418
Off-airport Parking	\$31.2	\$45.3	\$6.2	251
Food and beverage sales	\$62.6	\$103.3	\$26.5	1,760
Retail	\$49.1	\$80.3	\$17.1	659
Services	\$19.8	\$28.8	\$4.0	162
TOTALS	\$214.7	\$333.2	\$64.2	3,250

Impact of Non-Airline Businesses at Detroit Metropolitan Airport  
on the Michigan Economy

Summary Table

Category	Total Spending (millions)	Economic Impact (millions)	Earnings Impact (millions)	Jobs Impact
On-airport Parking	\$52.0	\$90.8	\$18.6	675
Off-airport Parking	\$31.2	\$54.5	\$11.1	405
Food and beverage sales	\$62.6	\$133.3	\$43.1	2,501
Retail	\$49.1	\$101.2	\$32.2	1,165
Services	\$19.8	\$34.6	\$7.1	262
TOTALS	\$214.7	\$414.4	\$112.1	5,008

## Airport Terminal Impact

To compute the total economic impact of Detroit Metropolitan Airport, the various types of economic impact must be added up. In doing so, each type of impact should be counted in one and only one category. A special difficulty arises when considering the purchases at an airport business of a visitor to the area. This spending would be included as Visitor Impact and also as Air Terminal Impact.

For purposes of calculating the total economic impact of the airport, then, the tables on the following pages compute the Air Terminal Impact for non-visitors only. The estimates assume that airport parking lots are used by Michigan residents, that hotel guests are visitors to the area, and that other on-airport businesses are used equally by all passengers. Eliminating double counting for these other businesses requires separate adjustments for the county and the state, since not all state visitors are county visitors. Hotel and car rental expenses are included as Visitor Impact and do not appear in any of the tables in this section.

The tables in the Executive Summary are calculated by reporting the entire Airport Terminal Impact (as reported on pages 19 and 20) and then subtracting a double counting adjustment. This double counting adjustment is the difference between the totals reported on the tables on the previous pages (19 and 20) and the corresponding totals reported on the following two pages.

Impact of Non-Airline Businesses at Detroit Metropolitan Airport  
on the Wayne County Economy  
Summary Table Excluding Visitor Spending

Category	Total Spending (millions)	Non-Visitor Spending (millions)	Economic Impact (millions)	Earnings Impact (millions)	Jobs Impact
On-airport Parking	\$52.0	\$52.0	\$75.5	\$10.4	418
Off-airport Parking	\$31.2	\$31.2	\$45.3	\$6.2	251
Food and beverage sales	\$62.6	\$59.0	\$97.3	\$25.0	1,658
Retail	\$49.1	\$46.2	\$75.6	\$16.1	620
Services	\$19.8	\$18.6	\$27.0	\$3.7	152
TOTALS	\$214.7	\$207.0	\$320.7	\$61.4	3,099

Impact of Non-Airline Businesses at Detroit Metropolitan Airport  
on the Michigan Economy

Summary Table Excluding Visitor Spending

Category	Total Spending (millions)	Non-Visitor Spending (millions)	Economic Impact (millions)	Earnings Impact (millions)	Jobs Impact
On-airport Parking	\$52.0	\$52.0	\$90.8	\$18.6	675
Off-airport Parking	\$31.2	\$31.2	\$54.5	\$11.1	405
Food and beverage sales	\$62.6	\$52.6	\$112.0	\$36.2	2,101
Retail	\$49.1	\$41.3	\$85.1	\$27.1	980
Services	\$19.8	\$16.6	\$29.0	\$5.9	219
TOTALS	\$214.7	\$193.7	\$371.4	\$98.9	4,380

## Section V. Economic Impact of Renewal

Detroit Metro's Capital Improvement Program (CIP)	\$1.2 billion
Jobs Impact of CIP in Fiscal Year 2006	4,470
Total Economic Impact on Michigan: FY 2006-2010	\$2.1 billion
Passenger Growth Supported by 2015	30%
New Job Creation from Passenger Growth	21,508

Detroit Metropolitan Wayne County Airport represents a value to the area economy that will grow over time. This growth is supported by airport renovation and renewal projects. These airport capital projects therefore have not only the immediate economic impact by creating demand for construction services, but also the ongoing economic impact resulting from a superior airport. The result is superior airport facilities that can support the FAA's projected growth in traffic at Detroit Metro. The FAA has determined that Detroit Metropolitan Airport has the fourth largest operational airfield capacity in the country. Maintenance and continuous improvement of the facilities are necessary for the airport to meet its potential for growth in economic impact.



### ***V.A Capital Improvement Program***

The Wayne County Airport Authority has authorized a Capital Improvement Program. The five year program in the Fiscal Year 2006 budget includes projects already underway as well as those to begin by the end of Fiscal Year 2010. This program, which is already underway, includes \$1.225 billion in spending on projects to improve and expand flight capacity at Detroit Metro. Of the \$1.225 billion, \$311 million was invested by the end of fiscal year 2005. An additional \$267 million will be invested in Fiscal Year 2006, which ends September 30, 2006.

Of the 72 items in the plan, the largest is the \$443 million development of the new North Terminal. Projects also include \$229 million in airfield improvements, \$190 million for Phase II of the McNamara terminal, and \$158 million for luggage screening.

The primary value of these projects is that they will enable the airport to grow and provide an even greater economic impact in the future than it does today. However, the projects themselves also have a direct economic impact. The \$267 million being spent in the current fiscal year has a total effect on output of \$608 million for Michigan, of which \$456 million remains in Wayne County. The total economic impact for Fiscal Year 2006 supports over 4,000 jobs in the state and \$196 million in earnings. Planned expenditures for future fiscal years will have a total economic impact of \$1.445 billion in output for Michigan, including \$1.085 billion in Wayne County.

## **Economic Impact of Renewal**

To determine this total economic impact, each line item in the Capital Improvement Plan has been allocated to an industry in the RIMS database. By far the most important industry involved was Construction (including the North Terminal and much of the airfield work), with 43 line entries representing 82% of the overall spending. This is followed by Search, Detection, and Navigation Instruments, with 12 line entries (including the luggage screening devices) representing another 15% of the overall spending. Line item details are included in an appendix.

### ***V.B Projected Air Traffic Growth***

With the airport improvements in place, the Federal Aviation Administration Terminal Area Forecast for DTW calls for growth of 15.2% in total scheduled enplanements between calendar year 2005 and 2010, and a further growth of 12.8% by 2015. This will leave total scheduled enplanements 30.0% higher than today, with a corresponding increase in economic impact.

This increase in economic impact can be estimated by adopting the approximation that the multiplier values associated with spending will remain unchanged over the next decade. Assuming that the real (inflation-adjusted) spending per airline passenger remains at its 2005 level, the 30% increase in enplanements would also create a 30% increase in jobs impact, economic impact, and earnings impact. A 30% increase in jobs impact represents an additional 21,508 jobs in the state economy, of which 9,160 new jobs will be in Wayne County. The statewide economic impact of the airport is projected to grow to \$9.9 billion in inflation-adjusted 2005 dollars, while the earnings impact grows to \$2.7 billion in inflation-adjusted dollars.<sup>5</sup>

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<sup>5</sup> Assuming a 2.5% inflation rate over the next decade, the economic impact for 2015 would be reported as \$12.7 billion, with an earnings impact of \$3.5 billion.

## Section VI. Appendices

### VI.A Sources

Economic impact analyses have been conducted for other sources using methodologies similar to those used here for Detroit Metro. Examples of these include Memphis International Airport analysis at <http://www.memphisairport.org/EcImpactFinal.pdf> and a report on the Minneapolis/St. Paul International Airport available online at [http://www.mspairport.com/msp/docs/misc/mspimp04\\_FINAL.pdf](http://www.mspairport.com/msp/docs/misc/mspimp04_FINAL.pdf).

The Bureau of Transportation Statistics, a bureau of the United States Department of Transportation, makes its databases available at <http://www.transtats.bts.gov>. Form 41 Traffic data maintained by the BTS is available to determine the aggregate passenger and cargo traffic on each flight segment. This monthly data includes useful destination for each flight segment, including the number of flights, the destination of each flight, and the passenger and cargo numbers for each flight. Another useful BTS source is the DB1B database, which contains a 10% sample of ticket information. This sample has been used in this study to distinguish connecting passengers, arriving visitors, and returning residents.

The Wayne County Airport Authority Fiscal Year 2006 Approved Budget can be found at <http://metroairport.com/about/finance.asp> and contains information about the Capital Improvement Plan. 2005 flight activity at Detroit Metropolitan Wayne County Airport is available in a press release at [http://metroairport.com/uploads/docs/NR\\_2005\\_Stats.pdf](http://metroairport.com/uploads/docs/NR_2005_Stats.pdf).

American Express Business Travel press releases found at [http://home3.americanexpress.com/corp/pc/2005/aebt\\_mon.asp](http://home3.americanexpress.com/corp/pc/2005/aebt_mon.asp) contain information about car rental costs.

## Appendix: Sources of Data, Survey Questionnaire, and Computing Indirect Effects

The Detroit Metro Convention & Visitors Bureau makes available a Visitor Profile at <http://www.visitdetroit.com/visitorcenter/aboutdetroit/statistics/>. This Profile contains further information about visitors to the Detroit Metropolitan Area.

As described in the appendix, the indirect output impact and the jobs impact of the activity studied has been calculated with the aid of Regional Input-Output Measuring System data. This data is calculated by the U.S. Department of Commerce's Bureau of Economic Analysis. Information is available at <http://www.bea.gov/bea/regional/rims/>.

The Federal Aviation Administration's *Aerospace Forecasts 2006-2017*, available at [http://www.faa.gov/data\\_statistics/aviation/aerospace\\_forecasts/2006-2017/](http://www.faa.gov/data_statistics/aviation/aerospace_forecasts/2006-2017/), contains not only projections about the future of the aviation business but also historical information such as the revenue per passenger mile data used in this study. The FAA also has airport-specific forecasts available at <http://www.apo.data.faa.gov/main/taf.asp> which provided the estimates of future growth at Detroit Metropolitan Wayne County Airport. Capacity information about the airport was taken from the FAA's *Capacity Benchmark Report 2004*, available online at <http://www.faa.gov/events/benchmarks>.

## VI.B Survey Questionnaire

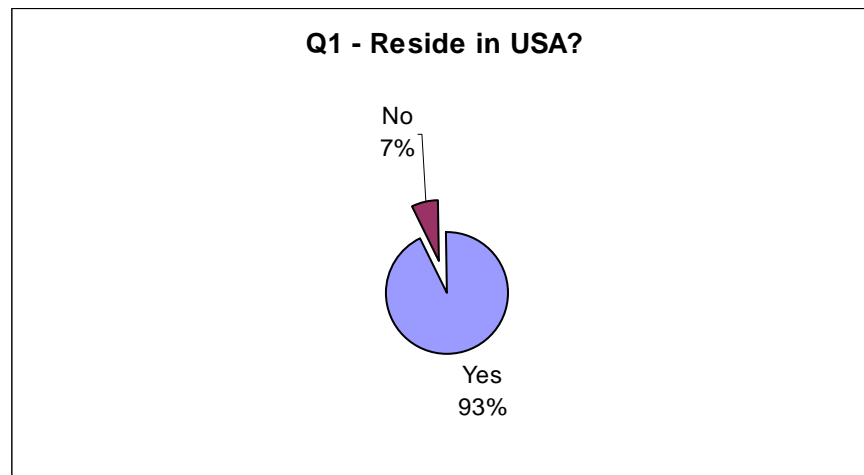
Following is the interview text of the survey questionnaire conducted in the McNamara and Smith terminals of Detroit Metropolitan Wayne County Airport in December 2005 and January 2006. Charts show answers as a percentage of those answering the question. With the exception of questions 1 through 3, reported answers are from self-reported visitors (as defined in Question 2). All participants were asked questions 1 and 2, and only those using Detroit Metropolitan Airport to visit another airport were asked question 3. Responses to the first two questions are weighted by the passenger traffic at each of the two major terminals.

### Wayne County Airport Authority Economic Impact Questionnaire

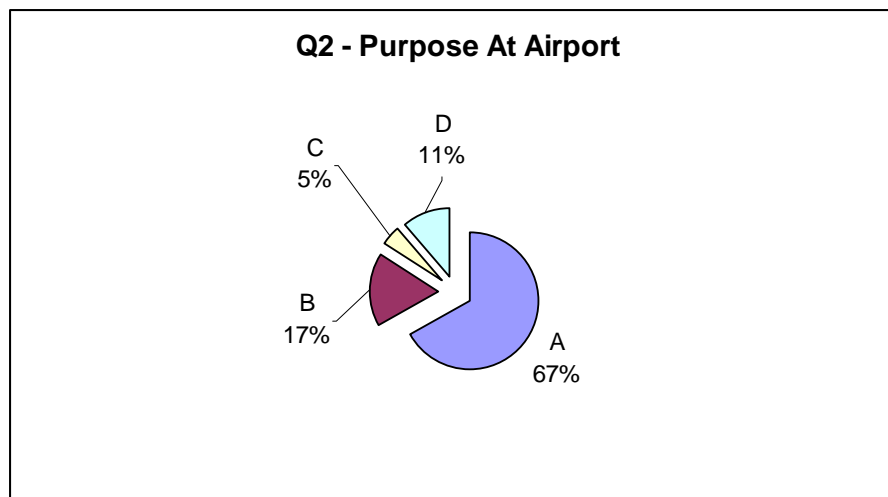
#### 1) Do you currently reside in the U.S.?

Yes

No



- 2) You are at the airport today because: ...
- a) You are connecting from one flight to another here at the airport  
(if Yes, end of survey)
  - b) You reside in Detroit Metropolitan Area and are using this airport to travel to/from another city  
(if Yes, go to Q3)
  - c) You reside outside Detroit Metropolitan area and are using this airport to travel to/from another city  
(if Yes, go to Q3)
  - d) You are beginning or finishing a visit/trip to the Detroit Metropolitan Area  
(if Yes, go to Q4)

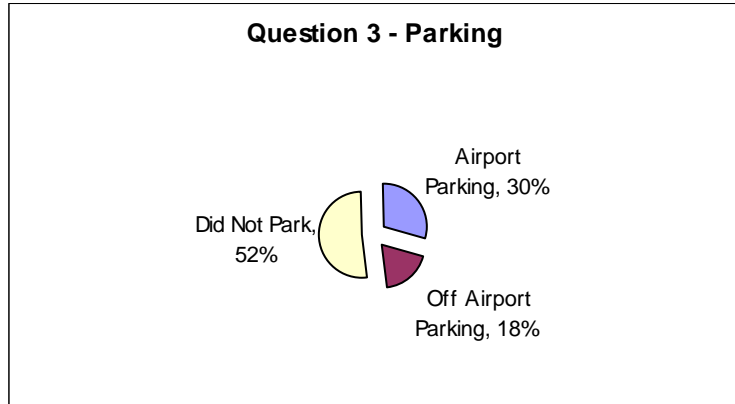


3) Did you:

a) Park a car in  
Detroit Metro Airport  
Parking

b) Park a car in Off  
Airport Property  
Parking

c) Did not park a car  
as a part of my trip



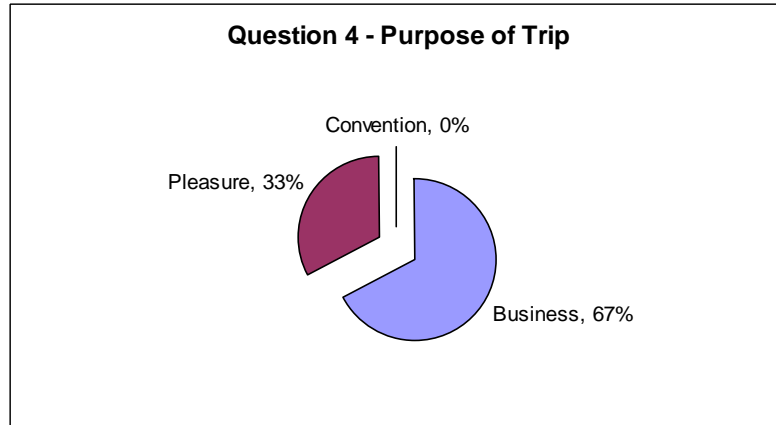
(All Q3 respondents end survey here)

4) The primary purpose of your visit/trip to the Detroit Metropolitan Area is:

Business

Pleasure

To Attend a  
Convention

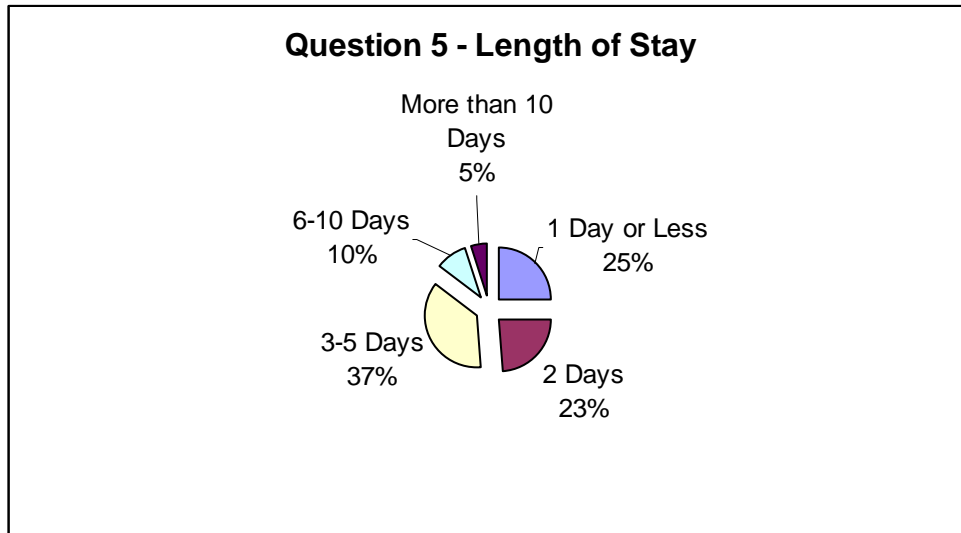




## Appendix: Sources of Data, Survey Questionnaire, and Computing Indirect Effects

- 5) As part of your visit/trip, you stayed or plan to stay how many days in Detroit Metropolitan Area:

< 1 day    1    2    3    4    5    6    7    8    9    10  
>10 days



## Appendix: Sources of Data, Survey Questionnaire, and Computing Indirect Effects

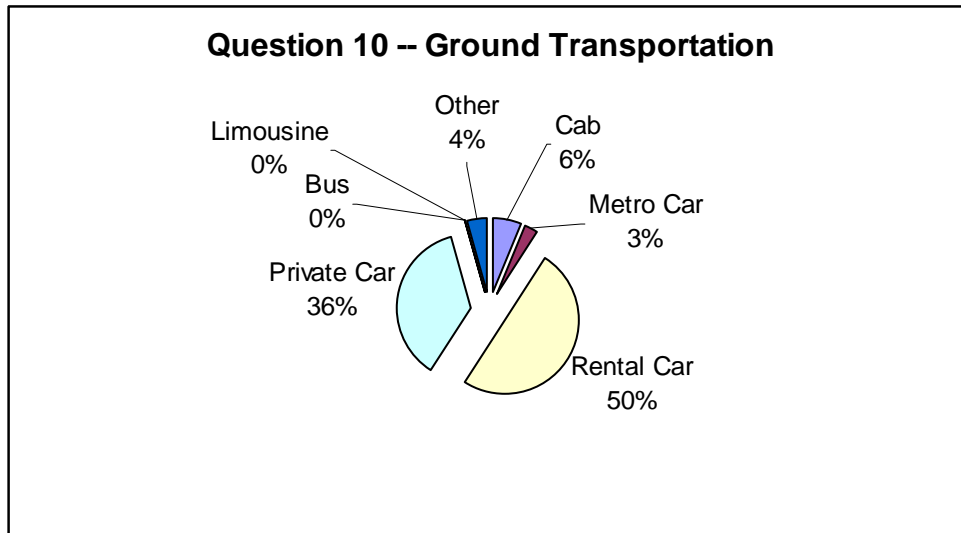
- 6) During your visit/trip , approximately how much money - IN TOTAL - do you think you spent/will spend on HOTELS/MOTELS:
- 7) During your visit/trip, approximately how much money – IN TOTAL - do you think you spent/will spend on Restaurants or other Dining Expenses (including business meals with customers that you might have paid for):
- 8) During your visit/trip, approximately how much money – IN TOTAL - do you think you spent/will spend on Entertainment (e.g., sporting events, movies, concerts, museums):
- 9) During your visit/trip, approximately how much money – IN TOTAL - do you think you spent/will spend on RETAIL merchandise (e.g., clothing, gifts)

Type of Spending	Percent Spending	Average of Spenders	Overall Average
6) Hotels/Motels	64%	\$347	\$223
7) Dining	89%	\$169	\$150
8) Entertainment	21%	\$135	\$29
9) Retail	32%	\$136	\$44

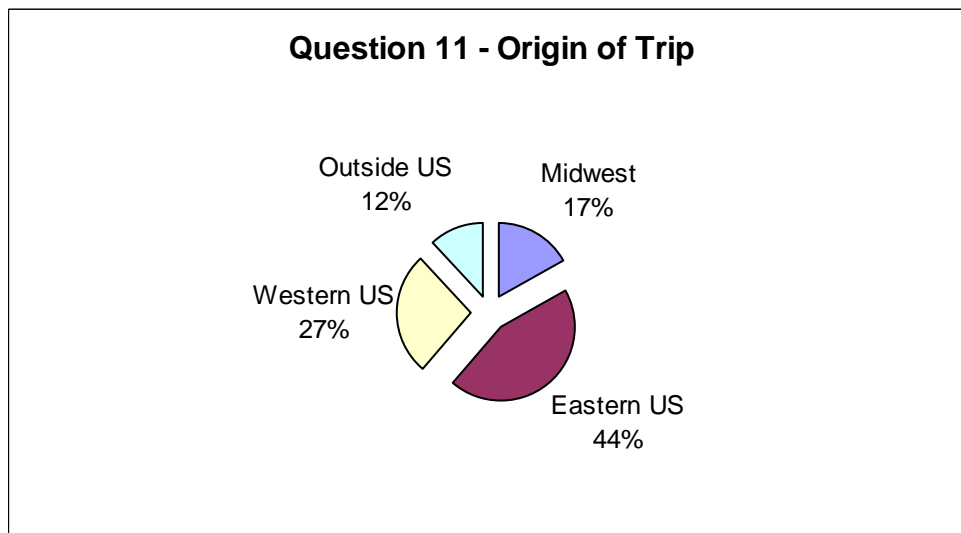
“Percent Spending” is the percentage of visitors who spent on each category. “Average of spenders” is the average spending on that category of those who spent on a given category. “Overall Average” is the average spending on that category of all visitors, and is the product of the first two columns.

10) During your visit/trip, .... generally ... you traveled or plan to travel via:

Cab      Metro Car Service      Rental Car  
Private Car of Friend/Family/Business Associate  
Bus      Limousine      Other



11) Your visit/trip originated in what state or country:



### ***VI.C Computing Indirect Effects***

As described in the text, a dollar of spending will have a total effect that depends on the geographic area explored as well as the industry in which that spending occurred. The Bureau of Economic Analysis, which is part of the United States Government Department of Commerce, has the data required to calculate “multipliers” for each industry and region. The regional Input-Output Multiplier Study (RIMS II) multipliers in this study were computed using 1997 national benchmark input-output and 2003 regional data. For the job multipliers, spending must be in 2003 dollars. Conversion to 2003 dollars has been done using the seasonally adjusted consumer price index (CPI) for all urban consumers. For 2003, the CPI averaged 184.0.

Some data, such as market survey data and parking data, represents current spending levels. To convert these data to 2003 dollars, the CPI for January 2006 (199.0) has been used. For example, to convert \$1 million in reported hotel spending to 2003 dollars, \$1 million would be multiplied by the ratio of the two CPIs ( $184.0/199.0$ ), giving a 2003 figure of \$925,000. Other data, such as airport businesses and air travel, represents calendar year 2005 data. To convert these data to 2003 dollars, the average CPI for 2005 (195.3) is used. To convert \$1 million in reported air travel spending to 2003 dollars, \$1 million would be multiplied by the ratio ( $184.0/195.3$ ), giving a 2003 number of \$942,000.

In each case, the current dollar totals have been reported for the economic impact numbers and the earnings numbers. The conversion to 2003 dollars has been done only for the employment data.

## Appendix: Sources of Data, Survey Questionnaire, and Computing Indirect Effects

With the information available, spending in each category was allocated to the most likely wholesale category, with the exception of retail purchases, which were allocated to retail trade. The industry categories for each type of spending involved in the study were as follows:

Spending Category	RIMS Industry	NAICS Code
Airline Transportation (Passenger and Cargo)	Air transportation	481000
Hotels	Hotels and motels, including casino hotels	7211A0
Dining	Food services and drinking places	722000
Entertainment	Other amusement, gambling, and recreation industries	713A00
Retail	Retail Trade	4A0000
Services (at airport)	Other personal services	812900
Car rental	Auto equipment rental & leasing	532100
Car parking	Other personal services (note: includes “Parking Lots and Garages”)	812900

For each element of spending identified in the project, the direct spending is multiplied by a “final-demand output” multiplier to compute the total economic impact. The direct spending is multiplied by a “final-demand earnings” multiplier to compute the total earnings impact. To compute jobs impact, the spending is first converted to 2003 dollars and then multiplied by a “final-demand employment” multiplier. Each of these multipliers has been calculated and provided by the Bureau of Economic Analysis. Each industry in the above table therefore has six multipliers used in this study: output, earnings, and employment multipliers for the county and output, earnings, and employment multipliers for the state.

## ***VI.D Capital Improvement Plan Components***

Following is a table which gives the industries used to calculate RIMS multipliers for each entry in the 2006-2010 Capital Improvement Plan. Spending amounts were taken from the Plan in the Fiscal Year 2006 Wayne County Airport Authority budget. The left column contains the RIMS category for each project listed in the right column.

AIRFIELD IMPROVEMENTS	
230000 – Construction	Construct Third AIF Facility
334511 - Search, detection, and navigation instruments	Surface Movement Guidance Control System
541300 - Architectural and Engineering Services	Runway 3L/21R Planning
230000 – Construction	Security Checkpoint Enhancements
641B00 - Other educational services	Computerized Security Training
334511 - Search, detection, and navigation instruments	Security Closed Circuit TV
230000 – Construction	Infill Island at Taxiway "Y-10"
541300 - Architectural and Engineering Services	Bal. of Design for Reconstruction of RW 3R/21L
230000 - Construction	Reconstruction of RW 3R/21L - Phase 1 (const. portion)
230000 - Construction	Reconstruction of RW 3R/21L - Phase 2 (const. portion)
230000 - Construction	Design and Construct 3L/21R Enhancements
230000 - Construction	Various Apron Replacement
230000 - Construction	Grade and Pave Taxiway "K" Islands
334511 - Search, detection, and navigation instruments	Multilateration Surveillance Technology
334511 - Search, detection, and navigation instruments	Runway Surface Monitor System (SCAN) on RW 4L/22R
230000 - Construction	Reconstruct Taxiway "H"
230000 - Construction	Reconstruct Taxiway "W-5"
230000 - Construction	Reconstruct Taxiway "F" from RW3R to Taxiway "W"
230000 - Construction	Reconstruct Taxiway "M"
230000 - Construction	Reconstruct Taxiway "V"
230000 - Construction	Reconstruct Taxiway "V-2"
230000 - Construction	Reconstruct Taxiway "F" from RW9L to Taxiway "H"
230000 - Construction	Reconstruct Taxiway "Y-11"
230000 - Construction	Reconstruct Taxiway "K" from K-11 to Y=16
230000 - Construction	Mill and Repave Taxiway "W"
230000 - Construction	Reconstruct RW 9L/27R
230000 - Construction	Mill and Repave Taxiway "K" from Y-16 to North End
230000 - Construction	Mill and Repave RW 4R/22L
230000 - Construction	Reconstruct Taxiway "Z"

## Appendix: Sources of Data, Survey Questionnaire, and Computing Indirect Effects

TERMINAL PROJECTS	
230000 - Construction	North Terminal Redevelopment (incl. Apron)
230000 - Construction	McNamara Terminal - Phase II (incl. Apron)
334511 - Search, detection, and navigation instruments	McNamara Interim 100% Luggage Screening
230000 - Construction	Existing Terminal Improvements Projects
230000 - Construction	Concessions Reimbursement at North Terminal
334511 - Search, detection, and navigation instruments	McNamara Terminal -- In-Line Luggage Screening
334511 - Search, detection, and navigation instruments	North Terminal - In-Line Luggage Screening
230000 - Construction	Demolition of Smith Terminal and Concourses
230000 - Construction	Demolition of Berry Terminal
NOISE MITIGATION PROGRAM	
230000 - Construction	Residential Sound Insulation Program
H00000 - Households	Residential Purchase Assurance Program
541300 - Architectural and Engineering Services	Part 150 Study Update
PARKING PROJECTS	
334511 - Search, detection, and navigation instruments	Automated Parking Revenue Management System
230000 - Construction	McNamara Deck Rehabilitation
541300 - Architectural and Engineering Services	Condition Assessment Study - Blue Parking Deck
333921 - Elevator and moving stairway manufacturing	Blue Deck - Elevator Replacement
230000 - Construction	Blue Deck - Lighting Improvement
230000 - Construction	Blue Deck - Upper Level Joint Replacement
230000 - Construction	Blue Deck Rehabilitation
230000 - Construction	Reconstruct Yellow Lot
ROAD PROJECTS	
334511 - Search, detection, and navigation system	Intelligent Transportation System - Phase I
332996 - Fabricated Pipe and Pipe Fitting Manufacturing	Dry Pipe Fire Suppression for North Tunnel SAR
334511 - Search, detection, and navigation instruments	Intelligent Transportation System - Phase 2
230000 - Construction	Rogell Drive - Dingell Drive Connector
SUPPORT FACILITIES	
230000 - Construction	Site Development for ARFF Training Facility
230000 - Construction	Pistol Range and Rifle Range at Training Facility
230000 - Construction	Relocate County Equipment - Training Facility
230000 - Construction	Airport Administration Building
230000 - Construction	Building 278 Demolition
230000 - Construction	Building 358 Demolition

## Appendix: Sources of Data, Survey Questionnaire, and Computing Indirect Effects

UTILITIES PROJECTS	
332996 - Fabricated Pipe and Pipe Fitting Manufacturing	De-Icing Fluid Force Main to DWSD
333415 - AC, refrigeration, and forced air heating	HVAC Renovation of Concourses
335930 - Wiring device manufacturing	Connect Powerhouse to Midfield Energy Center
334511 - Search, detection, and navigation instruments	Annunciator Integration at Powerhouse
OTHER PROJECTS	
336120 - Heavy duty truck manufacturing	Airport Equipment & Vehicles - Phase 1
336120 - Heavy duty truck manufacturing	Airport Equipment & Vehicles - Phase 2
541300 - Architectural and Engineering Services	Airport Layout Plan - 2004 Update
541300 - Architectural and Engineering Services	Update Master Plan
334511 - Search, detection, and navigation instruments	Automated Vehicle Identification System
339950 - Sign manufacturing	Modify Airport Signage - Smith Departure and Berry
339950 - Sign manufacturing	Airport Signage
230000 - Construction	Northwest Airlines Cargo Facility Expansion/Upgrade
230000 - Construction	Spirit Airlines Hangar Upgrade